

CLAIMS

What is claimed is:

- Sub A⁵
1. A tool for graphically defining an expression, said tool comprising:
- a graphic user interface (GUI) component comprising:
- means, responsive to user input, for defining one or more tree structures comprising a hierarchical series of nodes, and one or more lists comprising a plurality of items, each list item being associated with respective node of an associated tree;
- an expression generator component adapted to read a graphic definition of an expression provided by a user through said GUI component, expression generator component comprising:
- means for analyzing said graphic definition and generating an expression based on the structure of the or each tree and any list items associated with respective nodes of a tree.
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2. The tool according to claim 1 wherein said expression is adapted to configure one of a plurality of nodes of a relational message broker, a message broker or database query.
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3. The tool according to claim 2 wherein said expression is an SQL3 expression.

4. The tool according to claim 1, where said nodes comprise leaf and branch nodes, said branch nodes representing complex structured fields and said leaf nodes representing simple fields comprising one of a string, integer, real or a date.

5. The tool according to claim 4 wherein each list item comprises an expression.

5 6. The tool according to claim 5 wherein said GUI component is adapted to allow a user to define a tree structure representing an input data structure wherein any associated list item defines a filtering constraint.

7. The tool according to claim 6 wherein said GUI component is adapted to allow a user to define two or more input tree structures, each having an associated list, at least one list item associated with a first node of a first input tree structure identifying a second node of second input tree structure from which said expression generator generates an expression joining said two input tree structures on said nodes.

10 8. The tool according to claim 6 wherein said GUI component is adapted to allow a user to define an input tree structure having two or more associated lists, at least one list item from each list comprising an expression from which said expression generator generates a logical OR expression.

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9. The tool according to claim 6 wherein said GUI component is adapted to allow a user to graphically link two or more nodes within one or more input tree structures from which said expression generator generates a logical expression limiting said nodes to equality.

10. The tool according to claim 6 wherein said GUI component is adapted to allow a user to further define a tree structure representing an output data structure wherein any associated list item defines a formatting definition.

11. The tool according to claim 10 wherein said GUI component is adapted to allow a user to define an input tree structure and an output tree structure, each having an associated list, at least one of said list items for said output tree structure identifying a node of said input tree structure.

12. The tool according to claim 10 wherein said GUI component is adapted to display a list for an output tree to the left of the tree.

13. The tool according to claim 10 wherein said GUI component is adapted to allow a user to define a list item comprising a free variable, said free variable representing the associated tree structure node within said graphical definition.

14. The tool according to claim 10 wherein said GUI component is adapted to allow a user to define a tree structure comprising a node represented by a wildcard symbol, said

wildcard symbol representing said node and all otherwise undefined sub-structures of said node.

15. The tool according to claim 14 wherein said GUI component is adapted to allow a user to define a structure comprising a branch node having a sub-structure comprising one or more defined nodes and a node represented by a wildcard symbol.

16. The tool according to claim 1 wherein said analyzing means is cooperable with a grammatical definition of said graphic definition to generate said expression.

17. The tool according to claim 2 wherein one of said nodes comprises a filter for filtering XML messages.

18. A method for graphically defining an expression in accordance with a graphic definition comprising the steps of:

(a) defining one or more tree structures comprising a hierarchical series of nodes, and one or more lists comprising a plurality of items responsive to user input, each list item being associated with respective node of an associated tree;

(b) analyzing said definition; and

(c) generating an expression based on the structure of the or each tree and any list items associated with respective nodes of a tree.

19. A computer readable medium containing program instructions for graphically defining an expression in accordance with a graphic definition, the program instructions for: defining one or more tree structures comprising a hierarchical series of nodes, and one or more lists comprising a plurality of items responsive to user input, each list item being associated with respective node of an associated tree; analyzing said definition; and generating an expression based on the structure of the or each tree and any list items associated with respective nodes of a tree.

20. A system for graphically defining an expression in accordance with a graphic definition comprising: means for defining one or more tree structures comprising a hierarchical series of nodes, and one or more lists comprising a plurality of items responsive to user input, each list item being associated with respective node of an associated tree; means for analyzing said definition; and means for generating an expression based on the structure of the or each tree and any list items associated with respective nodes of a tree.